

# **AGRICULTURAL GRAPHICS**

## **Curriculum Content Frameworks**

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# Curriculum Content Framework

## AGRICULTURAL GRAPHICS

**Grade Levels: 10, 11, 12**  
**Course Code: 491050**

**Prerequisites: Agriculture Science and Technology or Agriculture Science**

Course Description: Students will prepare and read plans related to agricultural projects. They will learn to draw using hand-drawing equipment, mechanical equipment, and computer-aided equipment/software. This course has a large amount of hands-on activities.

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# Unit 1: Introduction to Agricultural Graphics

## 3 Hours

Terminology: Architect, Career Development Event, Drafting, Draftsman, Engineer, Mechanical drawing, Sketching

<b>CAREER and TECHNICAL SKILLS</b> What the Student Should Be Able to Do		<b>ACADEMIC and WORKPLACE SKILLS</b> What the Instruction Should Reinforce		
<b>Knowledge</b>	<b>Application</b>	<b>Skill Group</b>	<b>Skill</b>	<b>Description</b>
1.1 Define terms		Foundation	Reading	Applies/Understands technical words that pertain to subject [1.3.6]
1.2 Explain the importance of graphic applications in agriculture		Foundation	Writing	Communicates thoughts, ideas, or facts in written form in a clear, concise manner [1.6.6]
			Reading	Comprehends written information for main ideas [1.3.7]
1.3 Identify the variety of career possibilities related to agricultural graphics	1.3.1 Class will compile a list of careers that use graphics to express ideas	Interpersonal Skills	Teamwork	Contributes to group with ideas, suggestions, and effort [2.6.2]
1.4 List FFA activities and programs of interest to students involved in agricultural graphics		Foundation	Listening	Evaluates oral information/presentation [1.2.2]

## Unit 2: Equipment Used in Mechanical Drawing

### 5 Hours

Terminology: Architect's scale, Compass, Engineer's scale, Lettering guide, T-square, Template, Triangles

<b>CAREER and TECHNICAL SKILLS</b> What the Student Should Be Able to Do		<b>ACADEMIC and WORKPLACE SKILLS</b> What the Instruction Should Reinforce		
<b>Knowledge</b>	<b>Application</b>	<b>Skill Group</b>	<b>Skill</b>	<b>Description</b>
2.1 Define terms associated with the equipment used in mechanical drawing		Foundation	Reading	Applies/Understands technical words that pertain to the subject [1.3.6]
2.2 Identify equipment used in hand-drawn graphics	2.2.1 Recognize and identify common equipment specific to mechanical drawing	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3]
2.3 Label common drawing symbols and line types	2.3.1 Construct the common drawing symbols and line types	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
2.4 Describe how to use mechanical drawing equipment	2.4.1 Demonstrate the use of: T-square; triangles; protractor; compass; divider; drawing board	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
2.5 Indicate how architect's and engineer's scales are used	2.5.1 Apply the use of an architect's and engineer's scale	Foundation	Math	Draws to scale [1.1.20]

## Unit 3: Layout & Lettering Procedures

### 5 Hours

Terminology: none

CAREER AND TECHNICAL SKILLS What the Student Should Be Able to Do		ACADEMIC AND WORKPLACE SKILLS What The Instruction Should Reinforce			
Knowledge		Application	Skill Group	Skill	Description
3.1	Describe margin and title block layout	3.1.1 Demonstrate the proper way to draw the margin and title block	Foundation	Math	Follows specified dimensions on a plan [1.1.24]
3.2	Explain how to use lettering guides	3.2.1 Develop a drawing of the alphabet using lettering guides	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
3.3	Explain how to use numbering guides	3.3.1 Develop a drawing of the numbers 0-9 using numbering guides	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
3.4	Describe how to use symbols	3.4.1 Develop a drawing of the symbols used in sketching and drawing	Foundation	Math	Follows specified dimensions on a plan [1.1.24]

## Unit 4: Projections

### 10 Hours

Terminology: Isometric projection, Oblique projection, Orthographic projection, Scale

CAREER AND TECHNICAL SKILLS What the Student Should Be Able to Do		ACADEMIC AND WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
4.1 Define terms associated with projections		Foundation	Reading	Applies/Understands technical words that pertain to the subject [1.3.6]
4.2 Explain the purpose of a sketch	4.2.1 Interpret an object with a simple sketch	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
4.3 Describe the purpose of scale	4.3.1 Apply scale to a drawing of a simple object	Foundation	Math	Draws to scale [1.1.20]
4.4 Identify an orthographic projection	4.4.1 Demonstrate how to do an orthographic projection	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
4.5 Identify an isometric projection	4.5.1 Demonstrate how to do an isometric projection	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
4.6 Identify an oblique projection	4.6.1 Demonstrate how to do an oblique projection	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]

## Unit 5: Schematics & Blueprints

### 7 Hours

Terminology: Blueprint, Schematic

CAREER AND TECHNICAL SKILLS What the Student Should Be Able to Do		ACADEMIC AND WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
5.1 Define terminology associated with schematics and blueprints		Foundation	Reading	Applies/Understands technical words that pertain to the subject [1.3.6]
5.2 Describe an example of a schematic drawing	5.2.1 Demonstrate the ability to make a schematic drawing	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
5.3 Describe what a floor plan represents	5.3.1 Construct a simple floor plan	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
			Math	Draws to scale [1.1.20]
5.4 Identify the components of a foundation floor plan	5.4.1 Construct a foundation floor plan	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
			Math	Draws to scale [1.1.20]
5.5 Identify the components of a plumbing floor plan	5.5.1 Demonstrate how to do a plumbing floor plan	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
			Math	Draws to scale [1.1.20]
5.6 Identify the components of an electrical floor plan	5.6.1 Demonstrate how to do an electrical floor plan	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
			Math	Draws to scale [1.1.20]

## Unit 6: Computer-Aided Design

### 23 Hours

Terminology: Computer-aided design

CAREER AND TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC AND WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
6.1 Define all terms associated with computer-aided design		Foundation	Reading	Applies/Understands technical words that pertain to the subject [1.3.6]
6.2 Explain the importance of computer-aided design		Foundation	Writing	Communicates thoughts, ideas, or facts in written form in a clear, concise manner [1.6.6]
			Reading	Comprehends written information for main ideas [1.3.7]
6.3 Identify a variety of careers involving computer-aided design	6.3.1 Students will compile a list of careers involved with CAD	Interpersonal Skills	Teamwork	Evaluates oral information/presentation [1.2.2]
6.4 Create a floor plan and blueprint using CAD		Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
			Math	Draws to scale [1.1.20]



# Glossary

## Unit 1: Introduction to Agricultural Graphics

1. Architect—a person who creates original designs
2. Career Development Event—an FFA event designed to challenge a person interested in that field of work
3. Drafting—a form of graphic communication concerned with the preparation of drawings needed to develop and manufacture a product
4. Draftsman—a person who makes working plans and detailed drawings, prepares plans from specifications, verbal information, sketches and notes
5. Engineer—a person who is trained or professionally engaged in a branch of engineering
6. Mechanical drawing—a drawing made with precision drawing instruments
7. Sketching—a type of drafting technique that shows shape, dimensions, and special instructions on how an object is to be made or finished

## Unit 2: Equipment Used in Mechanical Drawing

1. Architect's scale—an all-around scale with a full-size scale of inches divided into sixteenths; also has a number of reduced-size scales in which inches or fractions of an inch represent feet
2. Compass—a drawing instrument used to create circles and arcs
3. Engineer's scale—a scale with a series of scales in which inches are divided into 10, 20, 30, 40, 50, 60, or 80 parts
4. Lettering guide—template used to form letters
5. T-square—a drawing instrument with a head and blade
6. Template—a pattern or guide
7. Triangles—drafting instruments that provide exact angles; may have one 90-degree angle and two 45-degree angles or 30-degree, 60-degree, and 90-degree angles

## **Unit 3: Layout & Lettering Procedures**

No terms

## Unit 4: Projections

1. Isometric projection—created by revolving the object; does not necessarily show all lines at their true length
2. Oblique projection—shows the depth by using projectors, or lines, representing receding edges of the object
3. Orthographic projection—system by which the views of a multiview drawing are arranged in relation to each other
4. Scale—an instrument used to lay off distances and make measurements

## **Unit 5: Schematics & Blueprints**

1. Blueprint—a reproduction of a drawing that has a bright background with white lines
2. Schematic—an elementary diagram that shows the way a circuit is connected and what it does

## **Unit 6: Computer-Aided Design**

1. Computer-aided design—a computer-graphics technology that places designs, drawings, graphs, and pictures on a display screen